ART. XVI.—*Digestion and its Derangements. The Principles of Rational Medicine applied to Disorders of the Alimentary Canal.* By THOMAS K. CHAMBERS, M. D., Fellow of the College of Physicians, Physician to St. Mary's Hospital, and Lecturer on the Practice of Medicine at St. Mary's Medical School, London, etc. 8vo. pp. 441. New York, 1856. S. S. & W. Wood.

THE organs of digestion, in the human subject, are, of all others, the most liable to derangement. The majority of their diseases are, however, neither difficult to remove, nor, in themselves, imminently fatal. The several morbid conditions of the digestive tube and its associated organs are, nevertheless, of importance, as well from the pain and distress by which they are so commonly attended, the impediment they interpose to perfect alimentation, and the regular and healthful nutrition of the system, and the tendency they have to induce, ultimately, morbid action in other organs of the body, both neighbouring and remote. They have, in consequence, always attracted the attention of medical men, and given rise to numerous able treatises devoted to the especial consideration of their pathology and treatment.

In another part of the present number of our journal will be found a notice of the work of Dr. Budd on the affections of the stomach, and we have now before us the still more recent publication of Dr. Chambers on the physiology and derangements of digestion. Both these works are of very high character, though differing considerably in their general plan, scope, and character.

The treatise of Dr. Budd presents a plain, practical exposition of the various derangements and diseases of the stomach, their nature, diagnosis, and treatment—the physiological facts necessary to a correct appreciation of the several pathological conditions of the organ being considered in immediate connection with those conditions. In the work of Dr. Chambers, the physiology of digestion is first very fully treated of, and then, the several abnormal conditions of the alimentary canal, the pancreas, and liver, by which digestion is impeded or deranged; the great object of the author being to exhibit an example of the mode of treating pathology and practice, "which may be justly called rational medicine—that is, the deduction of our rules for the management of disease from the scientific observations of health."

A pathology based on physiology is, unquestionably, the only philosophical and safe exponent of the natural history of disease. Unfortunately, however, our knowledge of the functional action of the several organs is, as yet, imperfect; while, of the intimate vital processes, in the disturbance or perversion of which morbid action mainly consists, we are still, in a great measure, profoundly ignorant. Consequently, in our pathological researches, we are able to avail ourselves of the sure light of physiology to a very limited extent. In those very circumstances in which that light is the most needed, it fails us entirely. We are still necessitated, in the study of disease, to limit ourselves to the field of simple observation. In respect to therapeutics, it will be found, we fear, that physiology can afford us but little aid. The efficiency of any given remedy or course of treatment, in the removal or modification of the morbid action or condition of a part, can be learned from no other source than experience—the result of repeated and cautious observation. It is not until we shall have acquired from this source a knowledge of the actual kind and degree of modification which each remedial agent produces in the vital conditions and actions of the several tissues and organs that we can expect a system of therapeutics based upon physiology to be established.

The account given by Dr. Chambers of the structure and functions of the digestive organs, and of the physiological action of substances submitted to absorption in the alimentary canal, is a very full and excellent one, embracing a fair digest of the views of the most authoritative of modern observers in relation to the several questions involved in the general subjects of digestion and alimentation. Occasionally, it is true, the teachings of the author are tinctured by hypothetical assumptions of a rather doubtful character—taken as a whole, they are, nevertheless, particularly interesting and instructive.

In his account of accessory foods, that is, those by the use of which the metamorphoses of the organic structures are modified, so as best to accommodate themselves to required circumstances, Dr. C. divides them into increasers of metamorphosis, and arresters of metamorphosis. Among the first, he ranks water and kitchen salt; and among the second, alcohol, tea, coffee, and chocolate.

After an eulogium upon alcoholic drinks as a means, when temperately enjoyed, of advancing a people in the scale of humanity, Dr. C., basing his conclusions mainly upon the experiments of Dr. F. W. Böcker, attempts to prove that alcohol—

"By raising the nervous energy, enables a man so to use his body that, during his consequent rest, he absorbs or fixes enough to place himself in a better state than before. It prevents that exhaustion or wearing out of the absorbing tissues, which makes the machine less efficient for growth than before; and it allows, without damage, a certain amount of extra work, bodily or mental, to be imposed, by using indeed the substance of the body for a time, but enabling it to be replaced with interest afterwards."

He, however, very honestly admits that these advantages, which he supposes to flow from the use of alcohol, are not to be gained without the chance of paying a price for them.

"Dr. Böcker," he remarks, "has taken the opportunity of comparing the blood of persons accustomed to drink brandy daily, *but not in excess*, with that of a typical abstainer; and he finds it, as a whole, deficient in solid organic constituents, deficient in fibrin as compared with albumen, and with the red clot more carbonized, or, at least, more black than in perfect health. At the same time, there is an excess of the pale or colourless corpuscles over the number which ordinary blood possesses. That is to say, in short, that the blood is less vitalized, anæmic, and at the same time too venous—too much in the condition of that of the portal system; it retains too much of the effete matter. Such is the bad effect of alcohol taken as a daily habit for a long time; and the question is whether each indulgence in its use adds a grain to the heap, or whether we may not get the good out of it and avoid the evil. It is possible that the defensive power of alcohol may be the result of purely chemical or other physical agencies; that merely by its reactions on the corporeal substance it may enable the body to make up for the primary loss sustained. But this is only a possibility, and cannot yet be stated as a fact in favour of alcohol."

Alcohol has not been shown to possess the power of sustaining life force with a diminution of the waste of tissue. The evidence adduced to prove that it arrests metamorphosis tends rather to show that, by the obstruction it causes to the normal action of those organs, the office of which is to remove from the blood the hydro-carbonaceous products which are derived from the continual decomposition of the tissues, alcohol is, in fact, an arrester of hæmatosis, inasmuch as it retards its depuration, and thus gradually perverts the nutritive or assimilative process. This is evidenced by the fatty degeneration of the heart and arteries, of the kidneys and liver it induces—the cirrhosis of the latter being a pathological condition of extreme frequency in the habitual consumers of alcoholic drinks. The consumption of these drinks gives rise, also, to an undue accumulation in the blood of azotized substances, and hence the uric acid diathesis so commonly encountered in the votaries of Bacchus.

In taking up the several derangements of digestion, Dr. Chambers considers first those changes in the portions of the organism concerned in the function which are common to the whole alimentary canal. These are: A. Changes in the epithelium of the digestive canal—under which head he arranges, 1. Paralysis, or arrested secretion, either from poisoned blood or defective innervation; such as takes place in low zymotic fevers, or in the secondary adynamic states of inflammatory diseases; 2. The catarrhal state, with increased modified secretion; 3. The mucus flux, or chronic catarrh; 4. Excess of epithelium; 5. The acute inflammatory state; and, 6. The anemic state.

B. Changes in the bloodvessels of the alimentary canal, by which their power to absorb matters presented to them is diminished, as when the comparative density of the blood is lowered, its motion is impeded, or its alkalinity is lessened.

c. Changes in the mucus of the alimentary canal.

D. Changes in the water circulating through the mucous membrane.

E. Morbid effects of digestion traceable to nervous influence.

F. Morbid affections of the muscular coat of the alimentary canal interfering with its peristaltic action—it being too weak for its work, or its motion being arrested for a short distance by an organic change in the walls of the tube, or it being completely suspended by mental emotion.

G. Changes in the media of solution.

Notwithstanding the author has indulged in some pathological refinements that can be with difficulty appreciated at the bedside, still, from the remarks he has presented under the several heads just enumerated, many valuable practical hints may be acquired, of every-day applicability.

"The general indications of the deficiencies in the working order of the alimentary mucous membrane sketched out as above," Dr. C. observes, "may occur coincidentally with all kinds of anatomical lesions of the membrane itself, of the glands supplementary to it, or of distinct distant organs. They give hints how the diseases arising out of a compound of the phenomena of the local disorganizations with the general condition may be alleviated, and are therefore of value as introducing modifications of treatment. It is true, our choice of treatment must not be based on them alone; and sometimes the specially affected organ is of such importance that the general symptoms must be neglected for a time; but still they must never entirely be lost sight of."

The morbid states of the mouth and gullet affecting digestion are next considered—defective mastication, impediments to deglutition, and morbid states of the salivary secretion.

In this chapter, Dr. C. treats of heart-burn and waterbrash. As his views in relation to these affections differ considerably from those generally taught in the books, we present here the greater portion of his remarks in relation to their pathology:—

"Heart-burn consists of a painful sensation of heat running up in paroxysms from the pit of the stomach to the fauces. When the same sensation is accompanied by the ejection of a watery fluid, it is called *pyrosis*, or waterbrash.

"There is every reason to believe that the last-named liquid does not come, as used to be represented, from the stomach, but from the glands at the bottom of the œsophagus. For, in the first place, when thrown up without much effort, it is alkaline; and only when there is sufficient heaving to eject some of the contents of the stomach, does it present an acid reaction. Secondly, it exhibits in the microscope the same appearance as saliva, containing the scales of pavement epithelium which line the mouth and œsophagus. It possesses, too, the power of turning starch into sugar, and gives evidence of the presence of sulphocyanide of potassium by its reddening action on the proto-salts of iron. Now, the resemblance of the œsophageal cardiac glands to the salivary glands is stated to be very close, while the gastric glands are quite different, and, as it may reasonably be assumed from analogy, more likely that similar glands form similar secretions, than that diverse glands form similar secretions, the attribution of the fluid in question to the lower part of the gullet is an obvious conclusion.

"The probable *rationale* of its collection in the considerable amount which is thrown up in attacks of waterbrash, is this: that from some preternatural irritation of the stomach, such as the persistence of food in it, the collection of mucus, or morbid sensitiveness of the nerves, the same salivary secretion in the gullet which ordinarily accompanies meals continues afterwards, and is prevented from proceeding downwards by an irritated constriction of the muscular tube. After a time it is ejected, and the result is attained by that easy reversed action which is observed in the œsophagus, as distinguished from the severe strain of emptying the stomach by vomiting; and hence we have the easy eructation of mild fluid constituting an attack of the symptom in question." "The above explanation refers, in short, waterbrash to a spasm of the œsophagus detaining the saliva from proceeding into the stomach, which is enabled, during the absence of food, to collect that secretion in considerable quantities, and throw it up by a simple reversed muscular action.

"A morbid sensibility accompanying spasm, and running in the same direction, constitutes the *heart-burn* which occurs along with waterbrash. It must not, however, be supposed that it is any acrid, alkaline, or acid quality of the fluid ejected that causes the pain. A simple evidence of this is exhibited by getting the patient to swallow again the fluid which rises into the mouth. Of course, if it was capable of giving pain by its chemical constitution, it would do so in going down as well as in coming up. But nothing of the sort is experienced, and it excites as little discomfort as saliva in its downward course. Besides which, heart-burn occurs without waterbrash; indeed, it is by far most commonly dry, consisting only of a sensation like hot smoke rising in the throat, but bringing nothing up. In these cases, the most familiar ones to us all, either the spasm is not complete enough to stay the descent of the saliva, or not strong enough to bring it up, or that secretion has been exhausted by the recent digestion of a meal. Hence, heart-burn may be looked upon as the milder disease, of which waterbrash is the severer development. It occurs during the later periods of digestion as a consequence of overloading the stomach or eating improper food, even to moderately healthy persons, whereas pyrosis is confined to chronic invalids."

"The causes of heart-burn and pyrosis, though they are diseases of the œsophagus, do not lie *in* the œsophagus. Cancer, ulceration, or stricture of that organ, do not originate them in the majority of cases of these lesions, whereas they are a very common consequence of even slight morbid conditions of the whole stomach. It is to be remarked that they are easier produced by slight general states than by severe local states of the viscus. We constantly find cancerous tumours and considerable ulcerations in the gastric walls without any œsophageal symptoms at all; whereas a catarrh, a mucous flux, and more commonly still, simple atony of the stomach, seldom exist long without them. They are not, then, accompaniments of dangerous or fatal disorders, and for that reason may be said to have no morbid anatomy. We scarcely ever see the inside of an œsophagus that has suffered from them at any short period before death, except in cases of death by accident; for any distant severe malady seems to make all the minor evils.

"As they may be dependent upon one of several internal states, or upon several united, the external circumstances which lead to them are of course many and various. But the links in the causation of the immediate phenomena are so numerous, and the local gastric condition has usually lasted so long before they are produced, that it is difficult in most cases to make out a very consistent history."

"I think, however, it is of importance to distinguish the morbid conditions on which pyrosis and heart-burn depend, for the reason that they require different medicines and management. I wish this could be done with greater fulness, but yet the following aid to diagnosis may not be without its value. When they arise from the sour decay of the food, or simply from distension of the viscus arising in atony of the stomach, they occur three or four hours after a meal, and often bring up acid matter in the eructations; when dependent on mucous flux, they are most apt to come on in the morning before breakfast, and the ejected fluid is neutral or alkaline."

The next subject treated of is the disturbance of digestion resulting from acute and chronic morbid affections of the stomach, after which follows a consideration of the disorders of the small intestines interfering with digestion. Then the morbid states of the pancreas, and the pathological conditions of the liver as causes of disturbed digestion; finally, the disordered conditions of the colon affecting digestion, and giving rise to atonic constipation. The general subject of flatulence concludes the account of the disturbances of the digestive function, and the treatise concludes with a chapter on regimen, in which the author discusses briefly a few of the most important questions of dietetic and alterative medicine in reference to invalids.

From the foregoing brief notice of the general plan and subject-matter of the work before us, it will be seen that the author does not offer it as a treatise on the pathology and treatment of the diseases of the alimentary canal and its associated organs, but as one restricted to an investigation of the several derangements of the digestive functions—the diseased conditions of the organs concerned in the execution of these functions being noticed only so far as they explain the causes and phenomena of those derangements. Viewed in this light, the work is a highly instructive one, from which much valuable practical information may be obtained; it certainly demands a careful perusal, on the part of the physician. The pathological views of the author will be found to be, in general, well sustained, and to have, in those particulars in which they differ from commonly received opinions, the semblance, at least, of truth. The therapeutical directions of Dr. Chambers are simple and rational.

The chapter on regimen is replete with good sense. Many of the too common errors committed in reference to diet, especially in cases of chronic disease, by those in as well as out of the profession, are clearly pointed out. We are inclined even to admit all that the author teaches in relation to the uses of alcoholic drinks as a remedial agent, but must dissent from his special pleading in defence of their temperate habitual employment. We cannot admit with him that alcohol is, in health, an innocent stimulant, much less that, as he maintains, its use is necessary to sustain the health, intellectual vigour, and well-being of man, under any circumstances, short of certain conditions of adynamic disease, in which he may be placed.

With Dr. Chambers, the energy, vigour, intellectual powers, and happiness of a nation is mainly dependent upon their habitual use of alcoholic drinks; and to the want or relinquishment of these drinks he would attribute the decline and fall of empires—the moral and mental degradation of communities once distinguished for their political and intellectual greatness.

"The greater the perfection of the body," he remarks, "the better instrument the soul has to use, and physiology, experience, and everything else, show us that an animal attains the greatest perfection when it feels the least pain, and the greatest sum of total pleasure. That legislature, then, is truly patriotic which places within the reach of their countrymen the opportunity of gratifying the senses to the greatest possible amount without consequent pain. There is every reason to believe that by so doing they are making them bigger, stronger, braver, and more sensible. Although these physiologists should never be able to show that the gifts of Bacchus, or the 'cup which cheers but not inebriates,' the unaccountable quantity of salt which men and animals take when they can get it, and similar accessories, act as nourishment, though it should be proved that they *do not* act as nourishment, still we have a means of accounting for the indubitable fact that the opportunity for temperately enjoying them has always coincided with the advance of a nation in the scale of humanity. And that, on the other hand, some declines and falls have singularly accompanied the surrender of wholesome fermented liquids. Why were the Egyptians great when beer was the popular drink, and why have they become 'no nation' since it has ceased to be so? Is the degradation of Asia Minor and Arabia quite irrespective of the Moslem denial of wine to the best, that is, the conscientious citizens? There is reason to believe that an historian who would take up this subject, would be able to connect advance and retrogression more with the supply of superfluities than of pure necessaries; but, at the same time, it must be allowed that a Niebuhr is required to distinguish cause and effect in this physical, even more than in the political history of our species. When, then, a statesman is asked, 'Why will you not carry a Maine liquor law? Why will you not do all you can to put temptation out of the way of the intemperate?' he gives a sufficient answer when he says: 'Because liquor is nice (to some palates); and I will not deprive my *noblest* and *most cherished* countrymen, *the temperate man*, of a pleasure likely to make *him* stronger and happier.'"

In his zeal to promote the habitual use of alcoholic stimulants, Dr. C. denies that the moderate use of these stimulants ever endangers the creation of an inordinate and uncontrollable appetite for them, leading to habits of intemperance, with all their horrid accompaniments of physical degeneration and moral ruin. In reply to this strange assumption of the author, it is only necessary to point to the recorded experience of the whole human race, from the earliest periods to the present time, which proves incontestably that moderate indulgence in alcoholic liquors is especially liable to lead to their excessive use. Now, the lesson which experience teaches us cannot be overthrown by the mere assertion, that, provided an individual does not partake of intoxicating drinks too frequently, he will not indulge in them to excess; and to this, in fact, amounts the entire argument of Dr. C. in his defence of these drinks as a useful, if not indispensable accessory article of food. D. F. C.

ART. XVII.—*Practical Treatise on the Diseases of Children and Infants at the Breast, including the Hygiene and Physical Education of Young Children.* Translated from the French of M. BOUCHUT, with Notes and Additions by PETER HINCKES BIRD, F. R. C. S., author of the Jacksonian Prize Essay for 1849, *On Erysipelas.* 8vo. pp. 776. London, 1855.

THE treatise of M. Bouchut is unquestionably a very able one, presenting a full and generally accurate exposition of the characteristics, pathology, and treatment of nearly every disease and accident, surgical as well as medical, incident to the period of life from birth to the termination of childhood. The treatise, independent of its value otherwise, is especially interesting from the fact of its embodying the views, pathological and therapeutical, of Professor Trousseau, in reference to the several diseases of which it treats.

The first part of the treatise is devoted to a consideration of the hygiene and physical education of young children. These subjects are treated with great ability, and especially that portion of the hygiene of infancy which relates to lactation by the mother and nurse; in connection with which is fully discussed the important question of the influence which the condition, temperament, and anterior or actual diseases of the nurse is capable of exerting upon the health of those who derive from her their nutriment.

As a large number of the diseases to which young children are liable may with more certainty be prevented by a correct system of prophylaxis than almost any of those which occur in after life, the subject of infantile hygiene and management is one of deep importance, though too much neglected, and, we fear, to a certain extent, misunderstood by medical men generally. We hold that no general systematic treatise on the diseases of children can be considered complete of which it does not form a prominent feature. In the four chapters devoted to the subject in the treatise before us, the directions of the author for the hygienic treatment of the infant from birth to the termination of the nursery age, are, in their general outlines and most of their details, particularly sound and practical. On one or two points, we should be inclined to differ from him—more frequently, however, our own experience very fully corroborates the excellency and propriety of the views and precepts he has advanced. With M. Bouchut—

"We are astonished at not observing the art of bringing up children cultivated in a special manner, similar to that of rearing domestic animals. We are, moreover, surprised at finding how little is known concerning the hygiene of infants, and how much the precepts relating to their education are neglected by medical men, who, in this respect, are less informed than a great number of mothers of families, or of nurses.

"The physical education of children is, then, a most interesting subject of study to the medical man. From the cradle man must be taken in order to make him a robust and vigorous citizen, and to modify his constitution, if, perchance, it is vitiated in its origin. It is during infancy, especially, that strict attention to the laws of hygiene is necessary, whether it be to preserve the health or to re-establish it when disease has interrupted its course. The knowledge of these laws is the more important, inasmuch as we have often to contend against established errors in the method of bringing up children. How